

Sub
A2

5

10

15

20

25

3. An apparatus according to Claim 1, wherein supplementing means includes second supplementing

Sub
A2
Cont

means for effecting supplementation for the defect by
correcting image data corresponding to a recording
element adjacent to the non-operating recording
element, on the basis of image data corresponding to
5 the non-operating recording element.

4. An apparatus according to Claim 1, wherein
said supplementing means includes first supplementing
means for effecting supplementation for a recording
10 position which is to be recorded by the non-operating
recording element with a color which is different from
a color of said non-operating recording element. ;
and second supplementing means for effecting
supplementation for the defect by correcting image
15 data corresponding to a recording element adjacent to
the non-operating recording element, on the basis of
image data corresponding to the non-operating
recording element.

20 5. An apparatus according to Claim 1, wherein
said control means selects said supplementing means in
accordance with a duty of the image to be recorded..

25 6. An apparatus according to Claim 1, wherein
when the image to be recorded has a high duty, said
control means selects said first supplementing means,
and when the image to be recorded has a low duty, said

00449-050401

Sub
A2
cont

7. An apparatus according to Claim 2, wherein said first supplementing means effects recording with different colors, and effects recording with the same colors as the non-operating recording elements but with similar lightnesses.

9. An apparatus according to Claim 3, wherein said second supplementing means corrects an image density indicated by the image data corresponding to the recording element which is adjacent to the non-operating recording element in accordance with the image density indicated by multi-value image data for the non-operating recording element.

10. An apparatus according to Claim 1, wherein

Sub
A2L
CCL

the non-operating recording element includes a recording element which has become incapable of recording operation.

5 11. An apparatus according to Claim 1, wherein said recording head includes a plurality of nozzles and wherein the ink is ejected from the nozzle by driving the recording element.

10 12. An apparatus according to Claim 11, wherein said recording element includes an electrothermal transducer for supplying thermal energy to the ink to generate a bubble in the ink.

15 13. A method for forming a color image on the recording material in accordance with image data, using a recording head having a plurality of recording elements, said method comprising the steps of:

20 a step of identifying non-operating recording element of the plurality of recording elements;

 a step of discriminating an image recorded by said recording head;

25 a step of providing different supplementing manners for supplementing defects in a recorded image resulting from a non-operating recording element of said recording elements, selecting a supplement manner from the different supplementing manners, and

FOI b6 b7C b7D

Sub
A2
cont

a step of effecting recording with supplementation for the non-operating recording element through the selected manner.

14. A method according to Claim 13, wherein said supplementing step includes first supplementing step of effecting supplementation for a recording position which is to be recorded by the non-operating recording element with a color which is different from a color of said non-operating recording element.

15 15. A method according to Claim 13, wherein
supplementing step includes second supplementing step
of effecting supplementation for the defect by
correcting image data corresponding to a recording
element adjacent to the non-operating recording
element, on the basis of image data corresponding to
20 the non-operating recording element.

16. A method according to Claim 13, wherein said supplementing means includes first supplementing step of effecting supplementation for a recording position which is to be recorded by the non-operating recording element with a color which is different from a color of said non-operating recording element; and second

Sub
A2
cont

supplementing step of effecting supplementation for
the defect by correcting image data corresponding to a
recording element adjacent to the non-operating
recording element, on the basis of image data
5 corresponding to the non-operating recording element.

17. A method according to Claim 14, wherein said
first supplementing step effects recording with
different colors, and effects recording with the same
10 colors as the non-operating recording elements but
with similar lightnesses.

18. A method according to Claim 17, wherein said
first supplementing step includes a correcting step of
15 correcting image data corresponding to the non-
operating recording elements in accordance with the
color corresponding said to the recording element
effecting the supplementation, said first
supplementing step effects the supplementation on the
20 basis of the image data corrected by said correcting
means.

19. A method according to Claim 15, wherein said
second supplementing step corrects an image density
25 indicated by the image data corresponding to the
recording element which is adjacent to the non-
operating recording element in accordance with the

09454500

Sub
A2
COPY

image density indicated by multi-value image data for the non-operating recording element.

20. A method according to Claim 16, wherein when
5 the image to be recorded has a high duty, said selecting step selects said first supplementing step. and when the image to be recorded has a low duty, said selecting step selects said second supplementing step.

10 21. A method according to Claim 13, wherein the non-operating recording element includes a recording element which has become incapable of recording operation.

15 22. A memory medium storing a program for executing said recording method as defined in Claim 13.

20 23. A recording apparatus for forming a color image on the recording material with different colors, comprising:

a recording head having a plurality of recording elements;

25 recording head driving means for driving the recording elements of said recording head in accordance with image data to form an image on the recording material; and

100-30-3614860

Sub
A2
cont.)

5 supplementing means for effecting
supplementation recording with a different color of
the non-operating recording element and with similar
lightnesses, for a recording position which is to be
recorded by the non-operating recording element.

10 24. An apparatus according to Claim 23, wherein
said supplementing means includes correcting means for
correcting image data corresponding to the non-
operating recording elements in accordance with the
color with which the supplementation is to be
effected, said supplementing means effects the
supplementation on the basis of the image data
corrected by said correcting means.

15 25. An apparatus according to Claim 23, wherein
the non-operating recording element includes a
recording element which has become incapable of
recording operation.

20 26. An apparatus according to Claim 23, wherein
said recording head includes a plurality of nozzles
and wherein the ink is ejected from the nozzle by
driving the recording element.

25 27. An apparatus according to Claim 26, wherein
said recording element includes an electrothermal

FOR "36" 3651360

transducer for supplying thermal energy to the ink to generate a bubble in the ink.

28. A recording method for forming a color image
5 on the recording material with different colors, using
a recording head having a plurality of recording
elements, comprising the steps of:

10 a step of identifying non-operating recording
element of the plurality of recording elements;
a step of effecting recording in accordance with
image data; and

a step of effecting supplementation recording with a different color of the non-operating recording element and with similar lightnesses, for a recording position which is to be recorded by the non-operating recording element.

29. A method according to Claim 28, wherein said supplementing step includes a correcting step for
20 correcting image data corresponding to the non-
operating recording elements in accordance with the
color with which the supplementation is to be
effected, said supplementing step effects the
supplementation on the basis of the image data
25 corrected by said correcting step.

30. A method according to Claim 28, wherein the

1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000

10 32. A method according to Claim 31, wherein said recording element includes an electrothermal transducer for supplying thermal energy to the ink to generate a bubble in the ink.

34. A recording apparatus for forming a color
20 image on the recording material with different colors,
comprising:

recording head driving means for driving the
25 recording elements of said recording head in
accordance with image data to form an image on the
recording material; and

supplementing means for effecting

5

10

36. An apparatus according to Claim 34, wherein the non-operating recording element includes a recording element which has become incapable of recording operation.

37. An apparatus according to Claim 34, wherein said recording head includes a plurality of nozzles and wherein the ink is ejected from the nozzle by driving the recording element.

38. An apparatus according to Claim 37, wherein said recording element includes an electrothermal

09846900

10

15

20

25

41. A method according to Claim 39, wherein the non-operating recording element includes a recording

Sub
A2
cont

element which has become incapable of recording operation.

42. A method according to Claim 39, wherein said
5 recording head includes a plurality of nozzles and
wherein the ink is ejected from the nozzle by driving
the recording element.

43. A method according to Claim 42, wherein said
10 recording element includes an electrothermal
transducer for supplying thermal energy to the ink to
generate a bubble in the ink.

44. A memory medium storing a program for
15 executing said recording method as defined in Claim
39.

45. A recording apparatus for forming a color
image on the recording material, comprising
20 a recording head having a plurality of recording
elements;

inputting means for inputting multi-value
image data indicative of an image density;

correcting means for correcting image data
25 corresponding to a recording element which is adjacent
to the non-operating recording element of said
plurality of recording elements;

FOR 90" 801500

Sub
A2
eod

generating means for generating driving data for driving the recording elements corresponding thereto on the basis of the image data corrected by said correcting means; and

5 recording control means for controlling the recording elements of said recording head in accordance with the driving data thus generated to effect recording.

10 46. An apparatus according to Claim 45, wherein said correcting means corrects multi-value image data corresponding to the recording element located adjacent to the non-operating recording element.

15 47. An apparatus according to Claim 45, wherein the non-operating recording element includes a recording element which has become incapable of recording operation.

20 48. A method for forming a color image on the recording material in accordance with image data, using a recording head having a plurality of recording elements, said method comprising the steps of:

25 a step of inputting multi-value image data indicative of an image density;

a step of identifying a non-recording element of the plurality of the recording elements on the

20250101 08:54:50

Sub
A2
cont'd basis of a variation in densities of a test pattern
recorded by said recording head;

5 a step of correcting, on the basis of the
variation of the densities, image data corresponding
to respective recording elements to raise an image
density of the image data for the recording element
which is adjacent to the non-operating recording
element; and a step of correcting, on the basis of the
variation of the densities, image data corresponding
10 to respective recording elements to raise an image
density of the image data for the recording element
which is adjacent to the non-operating recording
element; and

15 a step of generating driving data for driving
the recording elements corresponding thereto on the
basis of the image data corrected by said correcting
means;

20 a step of recording controlling the recording
elements of said recording head in accordance with the
driving data thus generated to effect recording.

49. A method according to Claim 48, wherein said
correcting means corrects multi-value image data
corresponding to the recording element located
25 adjacent to the non-operating recording element.

50. A method according to Claim 48, wherein the

FOFQSD" 66H5H860

element which
operation.

51. A me
executing sa

5 51. A memory medium storing a program for
executing said recording method as defined in Claim
48.

10

15

20

25